

Summary

5 A continuous vapor-phase fluidized-bed process for the preparation of ethylene homopolymers and copolymers having a density of from 0.87 to 0.97 g/cm³ in which ethylene or mixtures of ethylene and C₃-C₈ α-monoolefins are (co)polymerized in the presence of a supported chromium catalyst in the polymerization zone of a vapor-phase fluidized-bed reactor under pressures ranging from 1 to 100 bar and at temperatures ranging from 30° to 125°C in the vapor phase in an agitated bed of bulk material comprising particulate polymer, the resultant heat of polymerization is removed by cooling the recirculated reactor gas and the resulting (co)polymer is removed from the vapor-phase fluidized-bed reactor, wherein, for the preparation of a (co)polymer of a specific density d, the (co)polymerization is carried out at a temperature which is in a range restricted by an upper envelope defined by equation I

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$$T_H = 171 + \frac{6d'}{0.84 - d'} \quad (I)$$

and a lower envelope defined by equation II

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$$T_L = 173 + \frac{7.3d'}{0.837 - d'} \quad (II),$$

25 in which the variables have the following meanings:

T_H is the highest reaction temperature in °C;

T_L is the lowest reaction temperature in °C;

d' is the numerical value of the density d of the (co)polymer to be synthesized.

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